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10/816,846	04/05/2004	Solomon Trainin	P-6407-US	3125
49444	7590	06/12/2007	EXAMINER	
PEARL COHEN ZEDEK LATZER, LLP			DANG, KHANH	
1500 BROADWAY, 12TH FLOOR			ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/816,846

Applicant(s)

TRAININ, SOLOMON

Examiner

Khanh Dang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4, 5 and 38-65 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4, 5, 38-65 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

Claims 4, 5, 38-65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 38, 46, and 56, the phrase "each interrupt has an associated command" is unclear in view of the originally filed specification. As disclosed, an appropriate bit is placed in the interrupt register to indicate that a Tx/Rx command or a background command is waiting to be processed. The timer starts the slot interval for processing the command using a slot interrupt.

In claim 4 and other similar dependent claims, it is not ascertained what may be "associated command of said selected interrupt" in view of the originally filed specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 4, 5, 38-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramakrishnan et al. (Ramakrishnan, 5,404,536) in view of the Wi-Fi standard (IEEE 802.11) generally defined by Wikipedia.

As best understood, with regard to claim 38, Ramakrishnan discloses a method of processing commands by an NIC adapter (10), comprising: scheduling interrupts before a start time of one of a series of sequential time slots each having an unique start time and an unique end time, wherein each interrupt has associated command (in Ramakrishnan, interrupts are scheduled before the start of one of the scheduled interrupts at the beginning of the a slot interval. In Ramakrishnan, "if any background work is pending, or if any interrupts are pending (block 60), processing continues in block 48, i.e. the backoff timer is set, context registers are restored, and return is made to background or interrupt processing" (column 6, lines 21-26). Thus, it is clear that the in Ramakrishnan, a register is used to store an indication of a background function waiting to be processed. In addition, in Ramakrishnan, the timer is used to provide time slots or intervals for the interrupts to occur or in another word, the timer is used for synchronizing interrupts of the processor. See at least column 1, line 54 to column 2, line 2; column 5, line 40 to column 7, line 10. Further, in Ramakrishnan, during the execution by the processor of a scheduled time-dependent function, processor interrupts are prohibited. Specifically, depending from the time interval set forth by the

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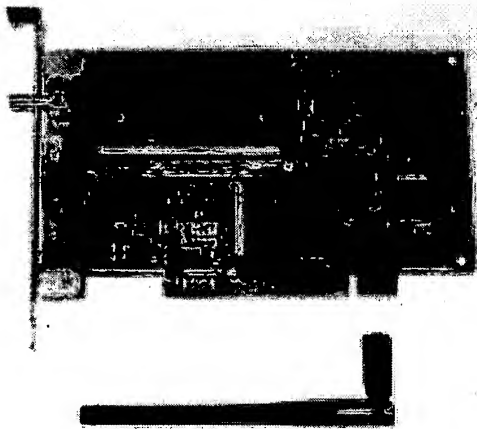
timer during which, transmit or receiving packets (Tx/Rx) are processed by the processor, or depending from whether the task is a processing task that needs to be completed in a timely manner or a background tasks/commands that need to be performed, interrupts are prohibited until expiration of the set time interval. See at least Fig. 2, column 1, lines 26-33; column 2, line 64 to column 3, line 68; column 4, line 38 to column 6, line 61; and the abstract. Further, it is clear that depending on whether the task is a time-dependent Tx/Rx, or a background task, the slot interval of each particular task is unique; and depending on the scheduled task, a scheduled interrupt is generated to begin a time slot. See at least column 5, line 4 to column 7, line 10. It is also clear that in Ramakrishnan, a series of tasks is processed one after another, each having a particular time slot preset, or in another word, sequential slots are provided for sequential tasks/commands); selecting one of said scheduled interrupts before said start time based on a predetermined priority (a scheduled interrupt is generated accordingly based on priority. See at least column 5, line 4 to column 7, line 10); and processing, from said start time to no longer than an end time of said one of said time slots, at least a portion of said associated command of said selected interrupt such that only said associated command is processed during said one of said time slots (it is clear from discussion above that the scheduled task/command is either or both a time-dependent Tx/Rx or/and a background task/command. It is also clear that at least a portion a particular task/command (Tx/Rx or background) is processed within the allocated time slot set by the timer.

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Ramakrishnan does not disclose that the network adapter NIC 10 is a wireless network adapter (for wireless device, for example) to provide wireless connection to the network.

However, the use of wireless NIC is old and well-known in the art as evidenced by the protocol defined by IEEE 802.11, the definition of which is provided by Wikipedia.

IEEE 802.11, the Wi-Fi standard, denotes a set of Wireless LAN/WLAN standards developed by working group 11 of the IEEE LAN/MAN Standards Committee (IEEE 802). The term 802.11x is also used to denote this set of standards and is not to be mistaken for any one of its elements. There is no single 802.11x standard. The term *IEEE 802.11* is also used to refer to the original 802.11, which is now sometimes called "802.11legacy." The following is a typical wireless NIC PCI card:



The 802.11 family currently includes six over-the-air modulation techniques that all use the same protocol. The most popular (and prolific) techniques are those defined by the b, a, and g amendments to the original standard; security was originally included and was later enhanced via the 802.11i amendment. 802.11n is another modulation

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technique that has recently been developed; the standard is still under development, although products designed based on draft versions of the standard are being sold. Other standards in the family (c–f, h, j) are service enhancements and extensions or corrections to previous specifications. 802.11b was the first widely accepted wireless networking standard, followed (somewhat counterintuitively) by 802.11a and 802.11g.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the NIC of Ramakrishnan as a wireless NIC, as taught by the IEEE 802.11, for the purpose of providing wireless connectivity to the network. Note that once the NIC of Ramakrishnan is wireless, it is clear that the timer can be called wireless timer.

With regard to claims 4 and 5, the background function comprises a plurality of background tasks defining segments or in another word, the background function can be divided into a plurality of background tasks or segments.

With regard to claim 39, as discussed above, the background task/command has the least priority. In another word, the interrupt is selected for processing background task when no other interrupts are scheduled. In any event, it is clear that if no other commands/tasks has been scheduled, the corresponding interrupt simply cannot be selected.

With regard to claim 40, as discussed above time-dependent Rx has more priority than background task/command. In another word, an interrupt for background processing is selected when interrupt for Rx is not scheduled. See at least column 5,

line 4 to column 7, line 10. In any event, it is clear that if a "receive command has not been scheduled," the corresponding interrupt simply cannot be selected.

With regard to claim 41, it is clear from discussion above, scheduled interrupts for scheduled processing tasks/command including Tx/Rx and background task/command. See at least column 5, line 4 to column 7, line 10.

With regard to claim 42, it is clear that the so-called "time accurate command" has more priority than the background task/command, and less priority than Tx/Rx. In any event, it is clear that if a Tx and Rx have not been scheduled, the corresponding interrupts simply cannot be selected.

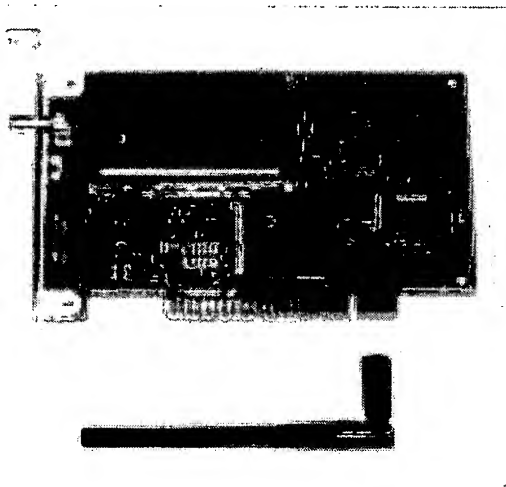
With regard to claim 43, as discussed above time-dependent Tx has more priority than background task/command. In another word, an interrupt for background processing is selected when interrupt for Tx is not scheduled. See at least column 5, line 4 to column 7, line 10. In any event, it is clear that if a "transmit command has not been scheduled," the corresponding interrupt simply cannot be selected.

With regard to claims 44 and 45, as discussed above, the combination above is in full compliant with the 802.11 wireless protocol, which mandates wireless link events or frame sequences, which are synchronized with the slot intervals.

With regard to claims 46-55, see discussion above, since the subject matter presented in claims 46-55 has already been discussed. 3, it is clear that scheduling interrupts of said processor in advance of slot signals issued by said wireless link synchronization unit (as discussed above, interrupts for time-sensitive task or

background task are scheduled in advance of the timer interrupt signals issued by the timer).

With regard to claims 56-65, see discussion above, since the subject matter presented in claims 46-55 has already been discussed. Further, as shown in the drawing above, the wireless NIC includes a dipole antenna.



Response to Arguments

Applicants' arguments filed 4/16/2007 have been fully considered but they are not persuasive.

At the outset, Applicants are reminded that claims subject to examination will be given their broadest reasonable interpretation consistent with the specification. *In re Morris*, 127 F.3d 1048, 1054-55 (Fed. Cir. 1997). As a matter of fact, the "examiner has the duty of police claim language by giving it the broadest reasonable interpretation." *Springs Window Fashions LP v. Novo Industries, L.P.*, 65 USPQ2d 1862, 1830, (Fed.

Cir. 2003). Applicants are also reminded that claimed subject matter not the specification, is the measure of the invention. Disclosure contained in the specification cannot be read into the claims for the purpose of avoiding the prior art. *In re Sporck*, 55 CCPA 743, 386 F.2d, 155 USPQ 687 (1986).

With this in mind, the discussion will focus on how the terms and relationships thereof in the claims are met by the references. Response to any limitations that are not in the claims or any arguments that are irrelevant and/or do not relate to any specific claim language will not be warranted.

The 112 Rejection:

See new 35 USC 112, 2nd paragraph applying to new claims.

The 103 Rejection:

With regard to claims 38, 46, and 56, Applicants argued that:

New independent Claims 38, 46, and 56 include “scheduling interrupts before a start time of one of a series of sequential time slots each having an unique start time and an unique end time, wherein each interrupt has an associated command; selecting one of said scheduled interrupts before said start time based on a predetermined priority; and processing, from said start time to no longer than an end time of said one of said time slots, at least a portion of said associated command of said selected interrupt such that only said associated command is processed during said one of said time slots.” It is respectfully submitted that neither Ramakrishnan nor the Wi-Fi standard (IEEE 802.11) generally defined by Wikipedia, alone or in combination, teaches or suggests these features.

Contrary to Applicants’ argument, as discussed above, in Ramakrishnan, interrupts are scheduled before the start of one of the scheduled interrupts at the beginning of the a slot interval. In Ramakrishnan, “if any background work is pending, or if any interrupts are pending (block 60), processing continues in block 48, i.e. the backoff timer is set, context registers are restored, and return is made to background or interrupt processing” (column 6, lines 21-26). Thus, it is clear that the in Ramakrishnan, a register is used to store an indication of a background function waiting to be processed. In addition, in Ramakrishnan, the timer is used to provide time slots or intervals for the interrupts to occur or in other words, the timer is used for synchronizing interrupts of the processor. See at least column 1, line 54 to column 2, line 2; column 5, line 40 to column 7, line 10. Further, in Ramakrishnan, during the execution by the processor of a scheduled time-dependent function, processor interrupts are prohibited. Specifically, depending from the time interval set forth by the timer during which,

transmit or receiving packets (Tx/Rx) are processed by the processor, or depending from whether the task is a processing task that needs to be completed in a timely manner or a background tasks/commands that need to be performed, interrupts are prohibited until expiration of the set time interval. See at least Fig. 2, column 1, lines 26-33; column 2, line 64 to column 3, line 68; column 4, line 38 to column 6, line 61; and the abstract. Further, it is clear that depending on whether the task is a time-dependent Tx/Rx, or a background task, the slot interval of each particular task is unique; and depending on the scheduled task, a scheduled interrupt is generated to begin a time slot. See at least column 5, line 4 to column 7, line 10. It is also clear that in Ramakrishnan, a series of tasks is processed one after another, each having a particular time slot preset, or in another word, sequential slots are provided for sequential tasks/commands. Ramakrishnan also discloses that a scheduled interrupt is generated accordingly based on priority. See at least column 5, line 4 to column 7, line 10. In addition, Ramakrishnan discloses that the scheduled task/command is either or both a time-dependent Tx/Rx or/and a background task/command. It is also clear that at least a portion a particular task/command (Tx/Rx or background) is processed within the allocated time slot set by the timer.

Applicants also argued that:

Applicants claim “sequential time slots” and “processing, from said start time to no longer than an end time of said one of said time slots, at least a portion of said associated command of said selected interrupt”. Thus, Applicants claim sequential time slots that are used for processing scheduled interrupts. In contrast, the time slots in Ramakrishnan are non-sequential. Ramakrishnan only teaches processing scheduled interrupts in the chain of blocks 48, 50, 52, and 30. Thus, the time slot of Ramakrishnan is defined by the

time needed to execute blocks 48, 50, 52, and 30. Sequential time slots would thus be defined as the repeated continuous execution of blocks 48, 50, 52, and 30. Instead, Ramakrishnan teaches executing other operations in between the execution of this group of blocks. Ramakrishnan teaches in Figure 2 that these blocks are only executed once and only after there is no receive work to do (block 36), the receive burst counter exceeds 100 (block 40) or the buffer counter exceeds 300 (block 54). Blocks 48, 50, 52, and 30 are thus only run once every time there is either no receive work to be processed or enough receive work has already been processed. Therefore, Ramakrishnan teaches that these blocks are not executed sequentially. Thus, Ramakrishnan does not teach sequential time slots.

Contrary to Applicants’ argument, depending on the scheduled task, a scheduled interrupt is generated to begin a time slot. See at least column 5, line 4 to column 7, line 10. It is also clear that in Ramakrishnan, a series of tasks is processed one after another, each having a particular time slot preset, or in another word, sequential slots are provided for sequential tasks/commands. Further, the wireless NIC discussed above is in full compliant with the 802.11 wireless protocol, which mandates wireless link events or frame sequences, which are synchronized with the slot intervals.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed; and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Dang whose telephone number is 571-272-3626. The examiner can normally be reached on Monday-Friday from 9:AM to 5:PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart, can be reached on 571-272-3632. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Khanh Dang
Primary Examiner